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ABSTRACT

Although research suggests that highly test anxious subjects are often motivated to escape from situations in which they are being evaluated, many persons in experimental situations do not see escape as an option. To examine the behavior of test anxious persons in aversive test situations, 60 college students, who were assessed as being high or low in test anxiety by their scores on the Test Anxiety Scale, attempted to solve an unsolvable line-tracing task under ego-involving test conditions. By means of instruction, the experimenter created weak, moderate, and strong levels of constraint against leaving. An analysis of the mean time subjects spent on the task for each experimental condition revealed that the high test anxiety-weak constraint condition was associated with a significantly shorter period of time on task than any other condition. Under weak constraint, high test anxiety subjects chose to escape more often than did low test anxiety subjects. Other results indicatd that subjects in the high test anxiety-strong constraint condition worked more slowly than did low test anxiety subjects under strong constraints. This finding, in conjunction with subjects' self-reports of their efforts to solve the task, lends support to the hypothesis that high test anxiety subjects with no easy escape will perform the task with greater caution. (NRB)

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# TEST ANXIETY, PERSISTENCE, AND RESPONSE WITHHOLDING UNDER CONDITIONS OF REPEATED FAILURE

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# Test Anxiety, Persistence, and Response Withholding Under Conditions of Repeated Failure

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One finding that has emerged from research on test anxiety is that highly test anxious subjects are usually motivated to escape from situations in which they are evaluated (e.g., Galassi, et al., 1981). Despite this, we have little evidence of actual escape behavior among anxious people under test conditions. Perhaps the main reason that escape behavior has not been studied more in test anxiety research is that in most experimental situations the persons involved do not believe that escape is a viable option. Under such conditions, does the highly test anxious person have recourse to any alternative line of behavior? Two answers to this question have recently been given. Carver and Scheier (1984) have proposed that when highly test anxious people appraise their chances of success as poor, the response may be "mental escape" in the form of task-irrelevant thoughts, daydreaming, and other such alternative flight reactions. They argue that the cognitive interference described by Sarason and others is in fact the product of this mental dissociation from the aversive task situation.

Some recent studies conducted in our laboratory suggest another possibility. We have shown that high test anxiety

subjects may react to a test situation from which they cannot easily escape by becoming cautious and withholding responses. By withholding responses the subject reduces the likelihood of of errors and hence avoids punishment. Such cautious behavior suggests a form of passive avoidance (Geen, in press a;b).

The study described here was designed to test two hypotheses. The first is that when subjects perceive that constraints against escaping from an aversive test situation are weak, those high in test anxiety will leave more quickly than those low in test anxiety. The second is that when subjects perceive that constraints against escaping from an aversive test situation are strong, those high in test anxiety will be slower and more cautious in performing the task than those who are low in test anxiety.

## Method

Subjects who were either high or low in test anxiety were given an unsolvable task under ego-involving test conditions. By means of instructions, the experimenter created weak, moderate, and strong levels of constraint against leaving the situation. The first hypothesis was tested by measurement of the amount of time the subject persisted at the task despite repeated failures. The second hypothesis was tested by analysis of (a) the rate at which the subject worked and (b) the subject's verbal reports of attitudes toward the task. Thirty men and 30 women served as subjects. All were drawn from a large pool of introductory psychology students who had taken the Test Anxiety Scale (Sarason,

1972). Fifteen of each sex were sampled from the upper 20% of scores on the TAS, and 15 of each sex were sampled from the lower 20%.

The task used in the experiment was a line-tracing problem devised by Feather (1961) for the study of persistence during repeated failure. The subject is instructed to trace a design without either duplicating a completed portion of the pattern or crossing a line already traced. Although the task appears simple, it is actually unsolvable. Each subject was supplied with a felt-tipped red pen and a stack of sheets of paper, on each of which the design had been mimeographed. Subjects were instructed to use as many sheets as they needed, and to discard any ruined sheet by throwing it into a waste paper basket next to the subject's table. The task was introduced with a modified version of the ego-involving instructions used by Sarason (1972). These instructions inform subjects that the task is an important indicator of their abilities and intelligence. We stressed the importance of the task as a measure of "visual/spatial intelligence" and "ability to plan ahead logically".

The experimenter explained that the line-tracing task would probably be difficult and that the subject could give up trying to solve it at any time. One-third of the subjects were told that they could stop at any time they desired. A third were gently reminded that they should not quit too quickly. A final third were urged to persist on the task. These instructions operationally define the low, moderate, and high degrees of constraint. After the subject had terminated his or her work on the task, the

experimenter gave the subject a short questionnaire which asked for several ratings on 7-point scales. The questions were: (1) How hard did you try to solve the line-tracing problem?, (2) How important was it to you to solve the problem?, (3) How bored were you by the problem?, (4) How curious are you to find out how the problem is done? and (5) How much care and attention did you give to the problem as you worked on it?

The experimenter then collected the final questionnaire and debriefed the subject. After the subject had left, the experimenter retrieved from the waste paper basket the sheets that had been discarded.

## Results and Discussion

The mean numbers of minutes spent by subjects on the tracing task for each condition of the experiment are shown in Table 1.

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Insert Table 1 about here

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A significant main effect for level of constraint, $F(2, 54) = 12.49$, $p<.01$, is obviously accounted for primarily by the high test anxiety-weak constraint condition, which is associated with a significantly shorter period of time on task than any other condition of the study. The constraint level by test anxiety interaction was also significant, $F(2, 54) = 5.63$, $p<.01$. The results therefore support the first hypothesis. Under conditions of weak constraints against escaping from the situation, high test

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anxiety subjects availed themselves of the opportunity to escape more than low test anxiety subjects. Under conditions of moderate and strong constraint, subjects high and low in test anxiety did not differ from each other in time on task.

The number of sheets used per minute defined the rate at which subjects performed. It was assumed that a slow rate would be found among subjects who manifested care and caution in their performance, whereas less cautious subjects would work at a faster and possibly less careful rate. The results shown in Table 2 indicate that subjects in the high test anxiety-strong

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Insert Table 2 about here

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constraint condition worked more slowly than low test anxiety subjects under strong constraints, whereas under weak and moderate constraints, subjects did not vary their rate of performance as a function of test anxiety. Significant effects were found for test anxiety, $F(1, 54) = 11.15$, $p<.01$ and for the test anxiety by constraint level interaction, $F(2,54) = 5.38$, $p<.01$. The latter finding supports the second hypothesis of the study.

The results of Table 2 by themselves do not necessarily show that in the strong constraint condition high test anxiety subjects were more cautious than their less test anxious counterparts. Possibly their slower rate of performance was due to their spending less time attending to the task. They may, for example, have been engaging in the sort of mental escape that Carver and Scheier (1984) have described. As the data indicate, however, in

the strong constraint condition, high test anxiety subjects indicated that they tried harder to solve the tracing problem and also invested more care in their performance than did their less test-anxious counterparts. Responses to these two questionnaire items therefore support the hypothesis that high test anxiety subjects who perceived that they could not easily escape the situation responded by expending greater care and caution on the task.

The results of the experiment support both of the hypotheses. No evidence was found to support the Carver-Scheier (1984) hypothesis of mental escape, as the questionnaire data clearly show. The probable reason for this is that our procedures did not permit a test of the Carver-Scheier proposal. Our instructions in the strong constraint condition enjoined subjects to pay close attention to the task. In other words, daydreaming and other forms of mental withdrawal were probably impossible for subjects who had been told pointedly not to give up and to give themselves a chance to solve the problem. In fact, the passive avoidance that we demonstrated in the present study may be thought of as an alternative to mental dissociation from the task whenever the probability of the latter is reduced through task demands or instructions.

The data from this study are consistent with a recent theoretical formulation of the nature of anxiety by Gray (1976), who links anxiety to a hypothetical behavioral inhibition center within the central nervous system. According to this viewpoint, highly anxious people are especially sensitive to stimuli

signalling punishment or frustrative nonreward. Our reasoning has been along similar lines. The reason that high test anxious subjects withhold responding is that they fear negative consequences of making errors. The test situation is, for them, a complex stimulus signalling potential punishment. We cannot, of course, attribute the findings of the present study to central inhibitory processes in the absence of data testing such a possibility. However, future research on test anxiety may show that such a line of inquiry is fruitful.

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Table 1
Mean Number of Minutes Spent on Task

| Level of Constraint | Test Anxiety: High | Test Anxiety: Low |
|---|---|---|
| Weak | 8.34 $_a$ | 12.65 $_b$ |
| Moderate | 14.22 $_b$ | 13.26 $_b$ |
| Strong | 15.54 $_b$ | 14.39 $_b$ |

Note. Cells with common subscripts are not significantly different at the .05 level by a Duncan multiple range test.

Table 2
Mean Performance Rate (Sheets per Minute)

| Level of Constraint | Test Anxiety: High | Test Anxiety: Low |
|---|---|---|
| Weak | 2.90 $_b$ | 2.47 $_{ab}$ |
| Moderate | 2.07 $_{ab}$ | 2.83 $_b$ |
| Strong | 1.70 $_a$ | 3.33 $_b$ |

Note. Cells with common subscripts are not significantly different at the .05 level by a Duncan multiple range test.

Questionnaire Data (1=VERY MUCH; 7=NOT AT ALL)

1. How hard did you try to solve the line-tracing problem?

High TA-Strong Constraint m = 2.10
Low TA-Strong Constraint m = 4.00
$t(18) = 2.71$ $p<.025$

2. How much care and attention did you give the problem as you worked on it?

High TA-Strong Constraint m = 1.70
Low TA-Strong Constraint m = 3.85
$t(18) = 2.21$ $p<.05$